Cold mining: mining and permitting in the 49th State

Alaska Department of Environmental Conservation
Division of Water
Wastewater Discharge Authorization Program
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Acknowledgements

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Cold mining: mining and permitting in the 49th State

- Overview
- Permitting and oversight
- Coal mining in Alaska
Overview

- Mining in Alaska
- Unique conditions
Improving and Protecting Alaska’s Water Quality
How is mining in Alaska unique?

There's a land where the mountains are nameless,
   And the rivers all run God knows where;
There are lives that are erring and aimless,
   And deaths that just hang by a hair;
There are hardships that nobody reckons;
   There are valleys unpeopled and still;
There's a land — oh, it beckons and beckons,
   And I want to go back — and I will.

—Robert Service, Spell of the Yukon
Friendly wildlife
Beautiful weather
Ideal conditions for construction
Conveniently located
Unspoiled natural splendor (ok, I’m serious about this one.)
Permitting and oversight

- Regulatory authority
- Large Mine Permit Team
Regulatory milestones

- Alaska Surface Coal Mining Control and Reclamation Act enacted in 1983.
- Primary regulatory authority vested in the Department of Natural Resources.
- Alaska Department of Environmental Conservation assumed primacy of the NPDES program in 2008.
Department of Natural Resources

Mining Resources Section

Coal Regulatory Program

- Permitting:
  - Notice of Intent to Explore
  - Exploration Permit
  - Operation Plan
  - Reclamation Plan

- Enforcement:
  - Minimum monthly inspections

Abandoned Mine Land Program

- Inventory & prioritize AML
- Reclaim projects
Abandoned Mine Land Program
Coal Regulatory Program

- Coal exploration
- Surface coal mining
- Underground mining
- UCG
- Coal haulage
- Stockpiles
- Conveyors
- Reclamation

Underground coal gasification
Department of Environmental Conservation

Division of Water

Mining & Technical Services Section

Permitting:
- APDES Permit
- Waste Management Permit

“Site visits” to mines.

Compliance Program

- APDES Permit compliance
Alaska’s coordinated permitting process

Large Mine Permit Team

- Multi-agency team approach to mine permitting
- Voluntary – MOU defines arrangement & proponent funds LMPT involvement
- DNR Project Coordinator assigned to the project & coordinates LMPT
- LMPT built from state agency staffs with extensive permitting experience
- First used in 1992 for the Fort Knox Project
Alaska’s coordinated permitting process

The Large Mine Permit Team participants

- Department of Natural Resources (DNR)
- Department of Environmental Conservation (DEC)
- Department of Fish and Game (DFG)
- Department of Transportation and Public Facilities (DOT)
- Department of Health and Social Services (DHSS)
- Department of Law
- Department of Commerce, Community, and Economic Development (DCCED)
Alaska’s coordinated permitting process

Major state authorizations

- Reclamation and Closure Plan (DNR)
- Waste Management Permits (DEC)
- Alaska Pollution Discharge Elimination System (APDES) Permit (DEC)
- Monitoring Plans (DNR/DEC/DFG)
- Water Rights (DNR)
- Financial Assurance (DNR/DEC)
- Dam Safety Approvals (DNR)
- Fish Habitat Permits (DFG)
- Air Quality Permits (DEC)
- Access/Rights of Way (DNR/DOT)
Alaska’s coordinated permitting process

Kensington Water Treatment Facility

**Large Mine Permit Team functions**

- Coordinated review of project applications (can also link to federal review process)
- Review, analyze, and evaluate technical documents
- Conduct inspections and evaluate permit conditions at operating mines
- The process benefits from multi-disciplinary expertise of team members (geologists, engineers, hydrologists, biologists, environmental scientists)
- The Team is involved from pre-permitting through post-closure monitoring

Improving and Protecting Alaska’s Water Quality
Coal mining in Alaska

- Geology and resources
- Coal mining history
- Coal mining today
- Future prospects
Alaska coal mining history

1786: Coal discovered in Kenai Peninsula at Coal Cove

1855: Russian-American Company opens first coal mine

Early uses: Whaling ships, sternwheelers, railroads
Alaska coal mining history
Alaska coal mining history
Alaska coal mining history

Usibelli Coal
Alaska coal mining today

“Ace in the Hole”
Alaska coal mining today
Alaska coal mining today
Alaska coal mining today

Healy coal stats
- Sub-bituminous
- 7,650 BTU/lb
- 28% moisture
- 9% ash
- 0.2% sulfur
- Low in mercury, other trace elements
- 700 million tons of reserves (expecting 1 billion tons)
Alaska coal mining today

July 2003

July 2012
### Alaska coal mining today

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<thead>
<tr>
<th>COC</th>
<th>Month Avg.</th>
<th>Daily Max</th>
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<tbody>
<tr>
<td>Iron (TR)</td>
<td>3 mg/L</td>
<td>6 mg/L</td>
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<tr>
<td>TSS</td>
<td>35 mg/L</td>
<td>70 mg/L</td>
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<tr>
<td>Solids (Sett.)</td>
<td>NA</td>
<td>0.5 mg/L</td>
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<tr>
<td>pH</td>
<td>6.0-8.5</td>
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Improving and Protecting Alaska’s Water Quality
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SANDERSON CREEK</th>
<th>HOSEANNA (LIGNITE) CREEK</th>
<th>WEST TIPPLE</th>
<th>METALS Method Detection Level Required</th>
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<tbody>
<tr>
<td></td>
<td>#1</td>
<td>#2</td>
<td>#3</td>
<td>#4</td>
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<tr>
<td>'H' represents a hardness-based standard (see Appendix A)</td>
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<td>Aluminum, TR</td>
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<td>Cadmium, TR</td>
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<td>Temperature</td>
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*Method Detection Limit - the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero as determined by a specific laboratory method (40 CFR 130).

**Not part of the NPDES permit application, but part of the Alaska Water Quality Standards and part of UCM's routine testing program.
Future prospects
Future prospects

- Outfalls (three types):
  1) Discharges of pumped groundwater
  2) Sediment control ponds
  3) Marine discharge to Cook Inlet
Future prospects

- **Treatment:**
  1. Green sand filters for groundwater
  2. Three cell sediment control structures
Future prospects

Improving and Protecting Alaska’s Water Quality
“If you don’t have the money to do it right, you don’t have the money to do it.”

—Henri Lentient, GM Red Dog Mine
Questions?
Thank you for your time!

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